

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte ANTHONY J. DEZONNO

Appeal No. 2005-2258  
Application No. 09/172,362

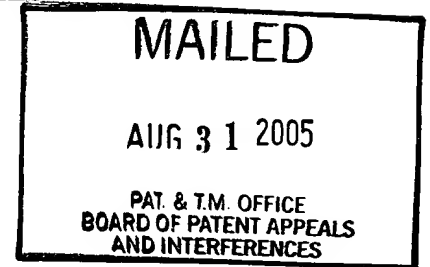
ON BRIEF

Before KRASS, RUGGIERO and GROSS, Administrative Patent Judges.  
KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-24.

The invention is directed to a neural network for controlling calls in a telephone switch, best illustrated by reference to representative independent claim 1, reproduced as follows:



Appeal No. 2005-2258  
Application No. 09/172,362

1. A method of processing calls in an automatic call distributor, such method comprising the steps of:

training a neural network with a set of desired resource relationships for servicing a plurality of call processing load conditions in the automatic call distributor; and

distributing resources of the automatic call distributor based upon call processor loading and the training of the neural network.

The examiner relies on the following references:

Bigus et al. (Bigus)	5,155,763	Oct. 13, 1992
Vilsoet et al. (Vilsoet)	5,546,456	Aug. 13, 1996
Donnelly	5,864,617	Jan. 26, 1999 (filed Aug. 13, 1996)
Corduroy et al. (Corduroy)	5,978,465	Nov. 02, 1999 (filed May 05, 1997)

Claims 1-24 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner offers Vilsoet, Bigus and Donnelly with regard to claims 1, 2, 4-11, 13-20, and 22-24, adding Corduroy with regard to claims 3, 12, and 21.

Reference is made to the briefs and answer for the respective positions of appellant and the examiner.

OPINION

At the outset, we note that, in accordance with appellant's grouping of claims at page 5 of the principal brief, all claims will stand or fall together. Accordingly, we will focus on independent claim 1.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teachings, suggestions or implications in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed.

Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1040, 228 USPQ 685, 687 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1051, 189 USPQ 143, 146-147 (CCPA 1976). Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered and are deemed to be waived [see 37 CFR § 41.67(c)(1)(vii)].

The examiner relies on column 4, lines 32-58, of Vilsoet to show a method of processing calls in an automatic call distributor (ACD 12 in Figure 1), wherein there is learning a set of desired resource relationships for servicing a plurality of call processing

load conditions in the ACD, and wherein there is a distributing of resources of the ACD based upon call processor loading and the learned set of resource relationships.

The examiner points to column 7, lines 1-59, of the reference, to show that the monitoring of agent activity suggests that call processing, i.e., inbound call connection and outdialing, is based upon an agent resource. Thus, the examiner asserts that Vilsoet not only teaches considering agent distribution, but also the consideration of call waiting time, queue size, etc. It is the examiner's position, therefore, that Vilsoet teaches the distribution of resources (agents) based upon changing call processing loading/conditions.

Further, the examiner cites column 2, lines 43-44, of the reference for "automatically distributing both inbound calls and outdialed calls to an agent at an agent telephonic unit" for the proposition that Vilsoet discloses agents as the claimed "resources" which are distributed and considered. Since Vilsoet seeks to maximize the use of its agent resources, this is read by the examiner as the claimed "distributing resources," as well as "a set of desired resource relationships."

The examiner readily admits that Vilsoet is silent as to any neural network being trained or used to distribute resources. However, the examiner points to the abstract of Bigus ("...predictive dialing system...call records are analyzed by a neural network to determine a relationship...as part of the training process..."), to Donnelly (Figure 18 and column 5, lines 15-16), as well as an admission by appellant at page 9 of the specification, to conclude that it would have been obvious to implement the Vilsoet system in a neural network setting in place of a conventional switching/data network "because a neural network platform would have advantages over a conventional switched network such as the...learning aspect taught by Vilsoet" (answer-page 6).

Appellant makes many arguments, including no neural network taught by Vilsoet, Donnelly and Corduroy, Bigus teaching a neural network for performing predictive outdialing, no teaching, by the cited references, of training a neural network with a set of resource relationships; the "resources" of Vilsoet and Donnelly being "calls" rather than "resources," as claimed, the "learning" of Bigus and Donnelly being "trained" but the wrong type of "training," as compared to the claimed "training," and no teaching

by the cited references of a distribution of resources "based upon call processor loading."

After careful consideration of the evidence before us, including the arguments of appellant and the examiner, we conclude that the examiner has established a prima facie case of obviousness which has not been successfully rebutted by appellant.

Claim 1 is rather broad in scope. It is a method of processing calls in an ACD, and comprises two steps. The first is to train a neural network with a set of resource relationships for servicing a plurality of call processing load conditions, and the second is to distribute resources of the ACD based upon call processor loading and the training of the neural network. No details of the neural network operation are claimed, other than it must broadly be trained for servicing a plurality of call processing load conditions.

As explained by the examiner, and we are in agreement therein, Vilsoet clearly teaches a method of processing calls in an ACD. Moreover, just as appellant does, Vilsoet treats agents as "resources" which are to be manipulated for distributing inbound and outdialed calls. That is, inbound and outdialed calls are

distributed to various agents based on various factors, including wait time, etc., and "maximizing the utilization of agents stationed at the agent telephonic units" (column 4, lines 61-62). In order to so maximize the "utilization of agents," Vilsoet clearly must know what the "desired resource relationships for servicing a plurality of call processing load conditions" are. Vilsoet then seeks to achieve those relationships. It is also clear from Vilsoet's disclosure that Vilsoet distributes resources based upon call processor loading (the larger the load, the more utilization of agents; where one agent's area of expertise is needed, that agent would conceivably be assigned to a particular call, etc.)

However, as recognized by the examiner, and appellant, Vilsoet mentions nothing about the use of neural networks or the training attendant thereto. The examiner points to page 9 of the specification for the proposition that neural networks and their use in communication systems were well known to artisans at the time of appellant's invention. The examiner also points to Bigus and Donnelly.

It is clear to us, from the disclosure of Bigus, alone, e.g., the abstract therein, that in a telephone dialing environment, it was known to employ neural networks "to determine a relationship



between the input parameters and the dial action stored in each call record. This analysis is done as part of the training process for the neural network..." (Abstract of Bigus).

Thus, it appears to us that it was known to artisans to train a neural network with a set of desired resource relationships for servicing a plurality of call processing load conditions," as broadly set forth in instant claim 1. The "load conditions" in Bigus may be whatever is indicated by the input parameters, and the "servicing" is manifested in whatever dial action is taken. Moreover, there is some "resource relationship" between the input parameters and the dial action.

Nevertheless, the broad teaching of Vilsoet of processing calls in an ACD, as set forth in instant claim 1, but for the use of a neural network trained for servicing the plurality of call processing loads and for distributing resources based, in part, on the training of the neural network, taken together with the clear teaching of Bigus of using a neural network in such telephone dialing systems for analysis of input parameters; training that neural network; and basing resource distribution on such training, the skilled artisan would have found it obvious, within the meaning of 35 U.S.C. § 103, to employ such a neural network in the Vilsoet

Appeal No. 2005-2258  
Application No. 09/172,362

ACD system for manipulating, more effectively, which agents are to be assigned to which calls.


Accordingly, we will sustain the rejection of independent claim 1, and, therefore, of claims 2-24, under 35 U.S.C. § 103.


The examiner's decision is affirmed.

Appeal No. 2005-2258  
Application No. 09/172,362

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)

AFFIRMED

  
ERROL A. KRASS  
Administrative Patent Judge

  
JOSEPH F. RUGGIERO  
Administrative Patent Judge

BOARD OF PATENT  
APPEALS  
AND  
INTERFERENCES

*Anita Pellman Gross*  
ANITA PELLMAN GROSS  
Administrative Patent Judge

EAK/dal

Appeal No. 2005-2258  
Application No. 09/172,362

WELSH & KATZ, LTD  
120 RIVERSIDE PLAZA  
22<sup>ND</sup> FLOOR  
CHICAGO, IL 60606